

REMARKS

Claims 1-3, 5, 7, 8 and 10-14 were presented and examined. In response to the Office Action, no claims are amended, no claims are cancelled and no claims are added. Claims 4, 6, 9 and 15 were previously cancelled. Claims 1-3, 5, 7, 8 and 10-14 remain in the Application. Reconsideration of the pending claims is respectfully requested in view of the above amendments and the remarks that follow.

Claim Rejections under 35 U.S.C. §103

A. Claims 1-3, 5, 7, 8 and 10-11 stand rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, et al. (“Sartorius,” *Dispersive Self Q-Switching in Self-Pulsating DFB Laser*, IEEE 1997) in view of U.S. Patent No. 6,018,541 issued to Huang (“Huang”) in view of U.S. Patent No. 5,177,758 to issued Oka, et al. (“Oka”). Applicants respectfully traverse this rejection.

The Examiner maintains the rejection of all pending claims based on the previously-cited references. Specifically, on page 3 of the Office Action, the Examiner indicates that Sartorius discloses “wherein the strength and the phase of the feedback laser light are controlled to vary the frequency of an optical pulse produced by the laser diode” (citing page 212, col. 1, paragraph 2 of Sartorius) and “wherein each of the active structures included in the DFB laser section and the amplifier section is formed in a manner in which a first light guiding layer, an active layer, and a second light guiding layer are sequentially deposited” (citing Fig. 1 of Sartorius).

On page 4 of the Office Action, the Examiner indicates that Huang discloses a loss-coupled grating, which longitudinally periodically varies both effective refractive index and loss. The Examiner asserts that it is an inherent function for a loss-coupled grating to longitudinally periodically vary effective refractive index and loss. The Examiner further indicates that Oka discloses “wherein the guiding layer of the phase control section is arranged through butt-coupling such that its central axis accords with those of the active structures.”

Applicants note that Huang does not disclose a DFB laser section that includes a loss-coupled grating. Rather, Huang discloses a DFB laser waveguide having two side-by-side regions, with one region (region A) applied with a positive potential and the other region (region B) applied with a negative potential (Fig. 3, col. 3, lines 25-35). Huang discloses that region B functions as a loss-coupled grating by absorbing energy at periodic intervals. The region B of Huang absorbs energy instead of oscillating the energy. There is no indication in Huang that the loss-coupled grating can be used in a device that oscillates laser light. Further, Huang does not disclose that the region B longitudinally periodically varies effective refractive index. Absorbing energy at periodic intervals may be an indication of loss. However, there is no indication that the effective refractive index also longitudinally periodically varies.

Further, Applicants believe that Huang is not combinable with Sartorius and Oka. To establish a *prima facie* case of obviousness, the Examiner must set forth “some articulated reasoning with some rational underpinning to support the conclusion of obviousness.” See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). Sartorius discloses a self-pulsating DFB laser device. Oka discloses a single-mode oscillation semiconductor device. Huang discloses a DFB laser waveguide. However, the laser waveguide of Huang is neither self-pulsating nor oscillating. Rather, the laser waveguide of Huang periodically distributes gains and absorption (Abstract). As a result, a feedback laser light entering region B of Huang will be absorbed and will not be oscillating (col. 3, lines 56-60 and Fig. 6). Thus, combining the loss-coupled grating in region B of Huang would change the principle of operation of the devices of Sartorius and Oka (See MPEP 2143.01 VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE).

Thus, for at least the foregoing reasons, the cited references do not teach or suggest each of the elements of Claims 1 and its dependent claims. Accordingly, withdrawal of the rejection of Claims 1-3, 5, 7, 8 and 10-11 is requested.

B. Claim 12 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 5,841,799 issued to Hiroki, et al. (“Hiroki”). Applicants respectfully traverse this rejection.

Claim 12 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 12.

Hiroki does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 12 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the § 103 rejection of Claim 12 are requested.

C. Claim 13 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 4,995,048 issued to Kuindersma, et al. ("Kuindersma"). Applicants respectfully traverse this rejection.

Claim 13 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 13.

Kuindersma does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 13 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the § 103 rejection of Claim 13 are requested.

D. Claim 14 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, Oka and Huang in view of U.S. Patent No. 6,031,860 issued to Nitta, et al. ("Nitta"). Applicants respectfully traverse this rejection.

Claim 14 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius, Oka and Huang do not teach or suggest each of the elements of Claim 14.

Nitta does not supply the missing elements in Sartorius, Oka and Huang. Thus, Claim 14 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the §103 rejection of Claim 14 are requested.

CONCLUSION

In view of the foregoing, it is believed that all claims are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

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